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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,258	12/05/2001	Kemin Zhou	3418	1011

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EXAMINER

SMITH, CAROLYN L

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 09/22/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/683,258

Applicant(s)

ZHOU, KEMIN

Examiner

Carolyn L Smith

Art Unit

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 and 33-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-32 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☒ Claim(s) 1-51 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other:

Art Unit: 1631

### **DETAILED ACTION**

Applicant's election without traverse of Group II (claims 18-32) in Paper No. 12, filed 7/17/03, is acknowledged. Claims 1-17 and 33-51 are withdrawn from consideration as being drawn to non-elected Groups.

Claims herein under examination are 18-32.

### ***Specification***

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code, such as on page 16, line 1 and page 19, lines 12 and 28.

Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

### ***Claim Objections***

Claim 18 is objected to because of the following minor informality: The improper use of periods in "a." and "b." in lines 3 and 5. Appropriate correction is requested.

### ***Claims Rejected Under 35 U.S.C. § 112, Second Paragraph***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1631

Claims 18-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Claim 18 recites "*the* genomic DNA" which lacks proper antecedent basis. Correction is suggested by removing "the" on line 1. Claims 19-32 are also rejected due to their direct or indirect dependence from claim 18.

Claim 18 is vague and indefinite as the preamble mentions protein binding to DNA while the method steps do not mention anything regarding protein. On line 4 of claim 18, there is mention of "unbound genomic DNA"; however, this can be interpreted to be DNA unbound to proteins or DNA unbound to other surrounding components that do not include proteins. Therefore, it is unclear if the preamble or the method steps are controlling the metes and bounds of this claim. Claims 19-32 are also rejected due to their direct or indirect dependence from claim 18.

Claim 20 recites the phrase "*the* step of determining candidate fragments" which lacks proper antecedent basis, as there is no previous step designated as a determination step. Correction is suggested by replacing the word "determining" with "obtaining" or "detecting", as these steps previously occur in the instant method claims. Claims 21-32 are also rejected due to their direct or indirect dependence from claim 20.

Claim 28 is rendered unclear due to the recitation of the range "10-50" without stating to what components this range refers. Clarification of this issue is requested via clearer claim wording. Claims 29-32 are also rejected due to their direct or indirect dependency from claim 28.

Art Unit: 1631

Claim 31 recites the phrase “*the* forward and lower strand sequences” which lacks proper antecedent basis. Correction is suggested by removing the word “the” from line 1. Claim 32 is also rejected due to its direct dependence from claim 31.

### ***Claim Rejections – 35 USC §102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 18, 19, 20, and 22 are rejected under 35 U.S.C. 102(a) as being anticipated by Pugh et al. (Genome Biology, 2001, Volume 2(4), pages 1013.1-1013.3).

Pugh et al. disclose binding transcription factors to their DNA on a genomic-wide scale in yeast as a biological sample (p. 1013.1, col. 1, second paragraph) which represents a profile of such binding. Pugh et al. disclose using chromatin immunoprecipitation (ChIP) assay and DNA microarrays (p. 1013.1, col. 1, second paragraph). The instant specification defines a “candidate fragment” as “a nucleic acid fragment that contains information about protein nucleic acid interactions” (paragraph 0022). Pugh et al. disclose the covalently cross-linking proteins to DNA (a well known form of *in vivo* footprinting), purifying the crosslinked DNA via antibodies (elimination of unbound genomic DNA), fluorescently labeling the enriched DNA fragments (“candidate fragments”), and detecting them via hybridization to DNA probes on a glass slide (p. 1013.1, col. 1, third paragraph to col. 2, first paragraph) as stated in claims 18, 19, 20, and 22.

Art Unit: 1631

Pugh et al. disclose the use of intergenic and intragenic (open reading frame) probes (p. 1013.1, col. 2, first paragraph) which means the genomic sequences of interest contain genic regions.

Pugh et al. disclose genome-wide location analysis coupled with gene-expression profiling and searches for consensus sites will potentially identify direct effectors of complex gene expression program (p. 1013.3, col. 1, third paragraph).

Thus, Pugh et al. anticipate claims 18, 19, 20, and 22.

Claims 18, 19, 20, and 22 are rejected under 35 U.S.C. 102(a) as being anticipated by Ren et al. (Science, 2000, Volume 290, pages 2306-2309).

Ren et al. disclose a microarray method for obtaining a profile of protein binding to genomic DNA of a biological sample from yeast and determining the location of the DNA-bound proteins (abstract). Ren et al. disclose a method that monitors protein-DNA interactions across the entire yeast genome (p. 2306, col. 1, second paragraph). Ren et al. disclose using chromatin immunoprecipitation (ChIP) with DNA microarray technology (p. 2306, col. 1, second paragraph to col. 2, first paragraph). Ren et al. disclose DNA fragments are cross-linked to protein (a well known form of footprinting), enriched by immunoprecipitation of the crosslinked DNA with antibodies and subjecting them to a different fluorescent label than the unenriched (unbound DNA) [elimination of unbound DNA from bound-DNA labeling], and hybridized to a microarray containing yeast intergenic sequences (p. 2306, col. 2, first paragraph). Ren et al. disclose a scanned image of a microarray containing a detectable red intensity identifying DNA bound to protein (Figure A). Ren et al. disclose this location profiling and expression profiles aided in the identification previously unknown functions of proteins (Gal4 and Ste12) (abstract), as stated in

Art Unit: 1631

claim 32. Ren et al. disclose using the combination of genome-wide location and expression analysis to identify global sets of genes controlled by transcriptional activators (p. 2308, col. 3, second paragraph). Ren et al. disclose proteins including some with unknown function (Figure 3A).

Thus, Ren et al. anticipate claims 18-20 and 22.

### ***Conclusion***

No claim is allowed.

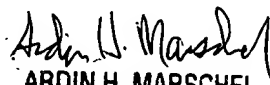
Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR §1.6(d)). The CM1 Fax Center number is either (703) 308-4242 or (703) 305-3014.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (703) 308-6043. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached on (703) 308-4028.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instruments Examiner Tina Plunkett whose telephone number is (703) 305-3524 or to the Technical Center receptionist whose telephone number is (703) 308-0196.

September 8, 2003

  
ARDIN H. MARSCHEL  
PRIMARY EXAMINER